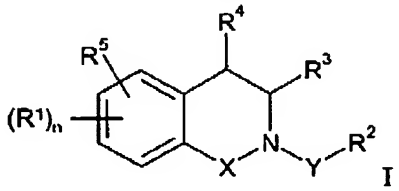
Claim Listing

1. (Currently Amended) A compound of the formula:



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or a pharmaceutically acceptable salt ~~or prodrug thereof~~,

wherein:

n is from 0 to 3;

X is $-CR^aR^b-$ ~~or C(O)~~, wherein R^a and R^b each independently are hydrogen or alkyl;

---- is an optional bond;

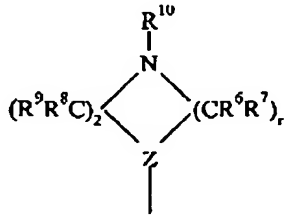
Y is $-SO_2-$ ~~when X is CR^aR^b and Y is $(CR^eR^d)_p$, when X is C(O),~~ ~~wherein p is from 1 to 3 and R^e and R^d each independently are hydrogen or alkyl~~;

each R^1 independently is halo, alkyl, haloalkyl, ~~heteroalkyl~~, hydroxy, nitro, alkoxy, cyano, $-S(O)_q-R^c$, $-NR^cR^f$, or $-C(=O)-NR^cR^f$, ~~$-SO_2-NR^eR^f$, $N(R^e)-C(=O)-R^f$, or $-C(=O)-R^e$~~, wherein q is from 0 to 2 and R^e and R^f each independently are hydrogen or alkyl;

R^2 is aryl~~, heteroaryl or cycloalkyl~~;

R^3 and R^4 each independently are hydrogen or alkyl; and

R^5 is at the 5- or 6- position of the isoquinoline ring system and is of the formula:



wherein:

Z is –N~~–or–CH–~~;

r is 2 ~~from 1 to 3~~; and

R^6, R^7, R^8, R^9 and R^{10} each independently are hydrogen or alkyl.

2. (Original) The compound of claim 1, wherein R^5 is located at the 5-position of the isoquinoline ring system.

3. (Canceled)

4. (Canceled)

5. (Canceled

6. (Currently Amended) The compound of claim [[4]] 1, wherein R^a and R^b are hydrogen.

7. (Canceled)

8. (Currently Amended) The compound of claim [[7]] 1, wherein R^2 is optionally substituted phenyl.

9. (Currently Amended) The compound of claim [[7]] 1, wherein R^2 is optionally substituted naphthalenyl.

10. (Currently Amended) The compound of claim [[7]] 8, wherein R^2 is selected from the group consisting of phenyl, 2-halophenyl, 3-halopheny, 4-halophenyl, 2,3-dihalophenyl, 2,4-dihalophenyl, 3,4-dihalophenyl, 2,5-dihalophenyl, 3,5-dihalophenyl, 2,6-dihalophenyl, 2-haloalkylphenyl, 3-haloalkylpheny, 4-haloalkylphenyl, 2,3-dihaloalkylphenyl, 2,4-dihaloalkylphenyl, 3,4-dihaloalkylphenyl, 2,5-dihaloalkylphenyl, 3,5-dihaloalkylphenyl, 2,6-dihaloalkylphenyl, 2-alkoxyphenyl, 3-alkoxypheny, 4-alkoxyphenyl, 2,3-dialkoxyphenyl, 2,4-dialkoxyphenyl, 3,4-

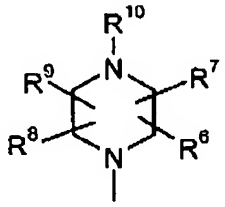
dialkoxyphenyl, 3,5-dialkoxyphenyl, 2,5-dialkoxyphenyl, 2,6-dialkoxyphenyl, 2-alkylphenyl, 3-alkylphenyl, 4-alkylphenyl, 2,3-dialkylphenyl, 2,4-dialkylphenyl, 3,4-dialkylphenyl, 3,5-dialkylphenyl, 2,5-dialkylphenyl, and 2,6-dialkylphenyl.

11. (Original) The compound of claim 9, wherein R^2 is naphthalene-1-yl or napthalene-2-yl.

12. (Currently Amended) The compound of claim [[7]] 1, wherein n is 0.

13. (Currently Amended) The compound of claim [[7]] 1, wherein R^3 and R^4 are hydrogen.

14. (Currently Amended) The compound of claim [[4]] 1, wherein R^5 is of the formula:



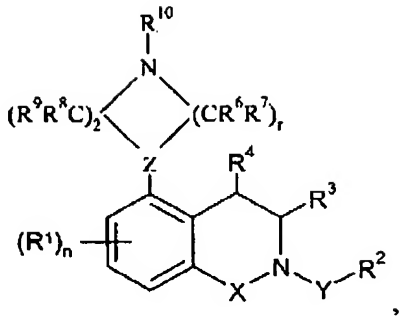
and R^6, R^7, R^8, R^9 and R^{10} are as defined in claim 1.

15. (Original) The compound of claim 14, wherein R^6, R^7, R^8, R^9 and R^{10} are hydrogen.

16. (Original) The compound of claim 14, wherein R^6, R^7, R^8 and R^9 are hydrogen and R^{10} is alkyl.

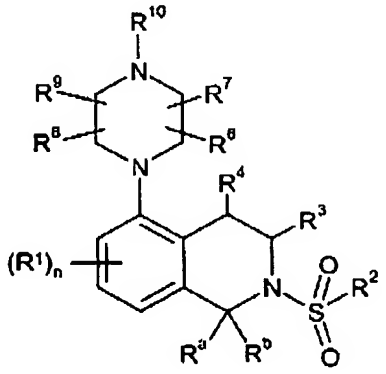
17-27. (Canceled)

28. (Original) The compound of claim 1, wherein said compound is of the formula:



and wherein n, r, X, Y, Z, R^1, R^2, R^3, R^4, R^6, R^7, R^8, R^9 and R^{10} are as defined in claim 1.

29. (Original) The compound of claim 1, wherein said compound is of the formula:



and wherein n, R^1, R^2, R^3, R^4, R^6, R^7, R^8, R^9, R^{10}, R^a and R^b are as defined in claim 1.

30. (Canceled)

31. (Currently Amended) The compound of claim 1, wherein said compound is selected from the group consisting of:

2-benzenesulfonyl-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-benzenesulfonyl-5-(4-methylpiperazin-1-yl)-1,2,3,4-tetrahydroisoquinoline;

2-(4-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(4-methoxy-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(3-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(3,5-dichloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(3,5-bis-trifluoromethyl-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(2,5-dimethoxy-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(3-chloro-4-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(2-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(2-chloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(3-chloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(3-methyl-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(2,3-dichloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(2-chloro-4-fluoro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(2,5-dichloro-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(naphthalene-1-sulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

2-(naphthalene-2-sulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydroisoquinoline;

~~2-benzyl-5-piperazin-1-yl-3,4-dihydro-2*H*-isoquinolin-1-one;~~

~~2-benzyl-5-(4-ethyl-piperazin-1-yl)-3,4-dihydro-2*H*-isoquinolin-1-one;~~

2-(2-Methanesulfonyl-benzenesulfonyl)-5-piperazin-1-yl-1,2,3,4-tetrahydro-isoquinoline;

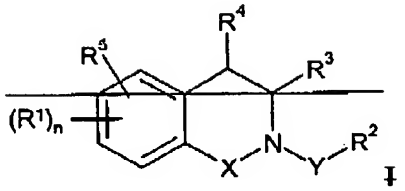
3-(5-Piperazin-1-yl-3,4-dihydro-1H-isoquinoline-2-sulfonyl)-benzamide;

[2-(5-Piperazin-1-yl-3,4-dihydro-1H-isoquinoline-2-sulfonyl)-phenyl]-urea; and

8-(5-Piperazin-1-yl-3,4-dihydro-1H-isoquinoline-2-sulfonyl)-quinoline.

32. (Original) A pharmaceutical composition comprising an effective amount of at least one compound of claim 1 in admixture with a pharmaceutically acceptable carrier.

33. (Currently Amended) A method for treating a central nervous system disease state in a subject, said method comprising administering to said subject a therapeutically effective amount of a compound of claim 1 ~~the formula~~



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~~or a pharmaceutically acceptable salt or prodrug thereof;~~

~~wherein:~~

~~n is from 0 to 3;~~

~~X is CR^aR^b or C(O) ; wherein R^a and R^b each independently are hydrogen or alkyl;~~

~~is an optional bond;~~

~~Y is SO_2 when X is CR^aR^b and Y is $(CR^cR^d)_p$ when X is C(O)~~

~~;~~

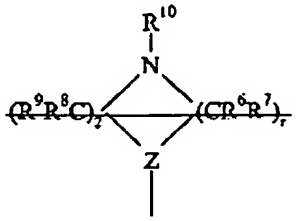
~~wherein p is from 1 to 3 and R^c and R^d each independently are hydrogen or alkyl;~~

~~each R^1 independently is halo, alkyl, haloalkyl, heteroalkyl, hydroxy, nitro, alkoxy, cyano, $S(O)_q R^e$, NR^eR^f, $C(=O)NR^eR^f$, $SO_2NR^eR^f$, $N(R^e)C(=O)R^f$, or $C(=O)R^e$, wherein q is from 0 to 2 and R^e and R^f each independently are hydrogen or alkyl;~~

~~R^2 is aryl, heteroaryl or cycloalkyl;~~

~~R^3 and R^4 each independently are hydrogen or alkyl; and~~

~~R^5 is of the formula:~~



~~wherein:~~

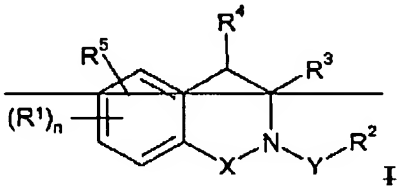
~~Z is N or CH ;~~

~~r is from 1 to 3; and~~

~~R^6, R^7, R^8, R^9 and R^{10} each independently are hydrogen or alkyl.~~

34. (Original) The method of Claim 33, wherein the disease state is selected from psychoses, schizophrenia, manic depressions, neurological disorders, memory disorders, attention deficit disorder, Parkinson's disease, amyotrophic lateral sclerosis, Alzheimer's disease and Huntington's disease.

35. (Original) A method for treating a disorder of the gastrointestinal tract in a subject, said method comprising administering to said subject a therapeutically effective amount of a compound of claim 1 ~~the formula:~~



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~~or a pharmaceutically acceptable salt or prodrug thereof,~~

~~wherein:~~

~~n is from 0 to 3;~~

~~X is CR^aR^b or C(O), wherein R^a and R^b each independently are hydrogen or alkyl;~~

~~.... is an optional bond;~~

~~Y is SO_2 when X is CR^aR^b and Y is $(CR^eR^d)_p$ when X is C(O);~~

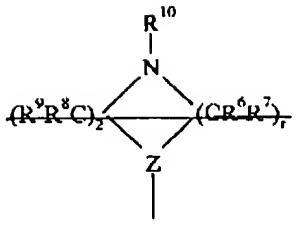
~~wherein p is from 1 to 3 and R^e and R^d each independently are hydrogen or alkyl;~~

~~each R^1 independently is halo, alkyl, haloalkyl, heteroalkyl, hydroxy, nitro, alkoxy, cyano, $S(O)_qR^e$, NR^eR^f, $C(=O)NR^eR^f$, $SO_2NR^eR^f$, $N(R^e)C(=O)R^f$, or $C(=O)R^e$, wherein q is from 0 to 2 and R^e and R^f each independently are hydrogen or alkyl;~~

~~R^3 is aryl, heteroaryl or cycloalkyl;~~

~~R^3 and R^4 each independently are hydrogen or alkyl; and~~

~~R^5 is of the formula:~~



~~wherein:~~

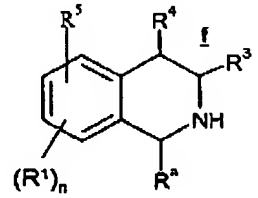
~~Z is N or CH;~~

~~r is from 1 to 3; and~~

~~R^6, R^7, R^8, R^9 and R^{10} each independently are hydrogen or alkyl~~.

36. (Currently Amended) A method for producing a ~~substituted isoquinoline~~ compound **of claim 1**, said method comprising:

reacting a compound of the formula:



wherein **n, R^1, R^a, R^3, R^4 and R^5 are as recited in claim 1,**[[:]]

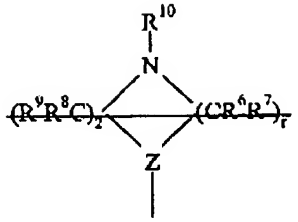
~~n is from 0 to 3;~~

~~each R^1 independently is halo, alkyl, haloalkyl, heteroalkyl, hydroxy, nitro, alkoxy, cyano, $-S(O)_q-R^e$, $-NR^eR^f$, $-C(=O)-NR^eR^f$, $-SO_2-NR^eR^f$, $-N(R^e)-C(=O)-R^f$, or $-C(=O)-R^e$, wherein q is from 0 to 2 and R^e and R^f each independently are hydrogen or alkyl;~~

~~R^a, R^3 and R^4 each independently are hydrogen or alkyl;~~

~~— is an optional bond;~~

~~R^5 is 5- or 6- position of the isoquinoline ring system and is of the formula:~~



~~wherein:~~

~~r is from 1 to 3;~~

~~Z is –N– or –CH– ; and~~

~~R^6, R^7, R^8, R^9 and R^{10} each independently are hydrogen or alkyl;~~

with a sulfonyl halide of the formula: R^2–SO_2–G wherein R^2 is as defined in claim 1 ~~aryl, heteroaryl or cycloalkyl and G is halo~~;

to yield a compound of ~~the~~ formula I wherein Y is -SO_2-;